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Common Avionics Display (CAD) as an Open Architecture (OA) Initiative

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Statement A: Approved for Public Release; distribution is unlimited

Common Avionics…
Key to Capability-Centric Transformation

NAVAIR

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Mention of them in no way guarantees that the U.S. Government will follow these plans or that any of the associated system capabilities, if developed, will be available or releasable to foreign governments.

Common Avionics Display Background

Through our work in integrating Communications Navigation & Surveillance/Air Traffic Management capabilities across naval aviation, PMA209 observed the trend of stove-pipe cockpit display efforts. The Naval Enterprise Display Working Group's Displays Database confirmed this observation across the Naval Enterprise

Naval Aviation Displays

- **Over 115 Display Models**
- **Over 50 Display Manufacturers**

Naval Enterprise Displays

- **Over 465 Display Models**
- **Over 115 Display Manufacturers**

Research pointed towards the feasibility of a common display for cross platform use.

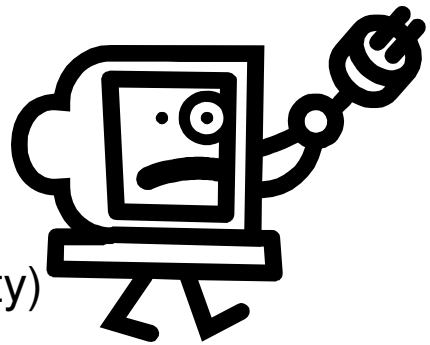
The issue is stovepipe solutions, proprietary architectures, duplication of efforts and downstream supplier lock-in.

CAD Program Overview

- 4 year SD&D program funded for FY06-09
- Primary Goal: Reduce Life cycle costs across the NAE
  - Development phase
  - Procurement – economies of scale
  - Logistics burden/footprint
    - Common displays for multiple platforms
    - Common components for multiple displays
  - Reduce obsolescence impact (parts and technology)
  - Reduce proliferation of unique displays

- Approach: Spiral acquisition of a *family* of *common* displays (max near term ROI)
  - Tactical cockpit (6”x8”) & mission displays (21” diagonal)
- Planned as a non-technology specific competition
  - Emphasis on OA in the competition space
- RFP release August 2006

CAD OA Objectives

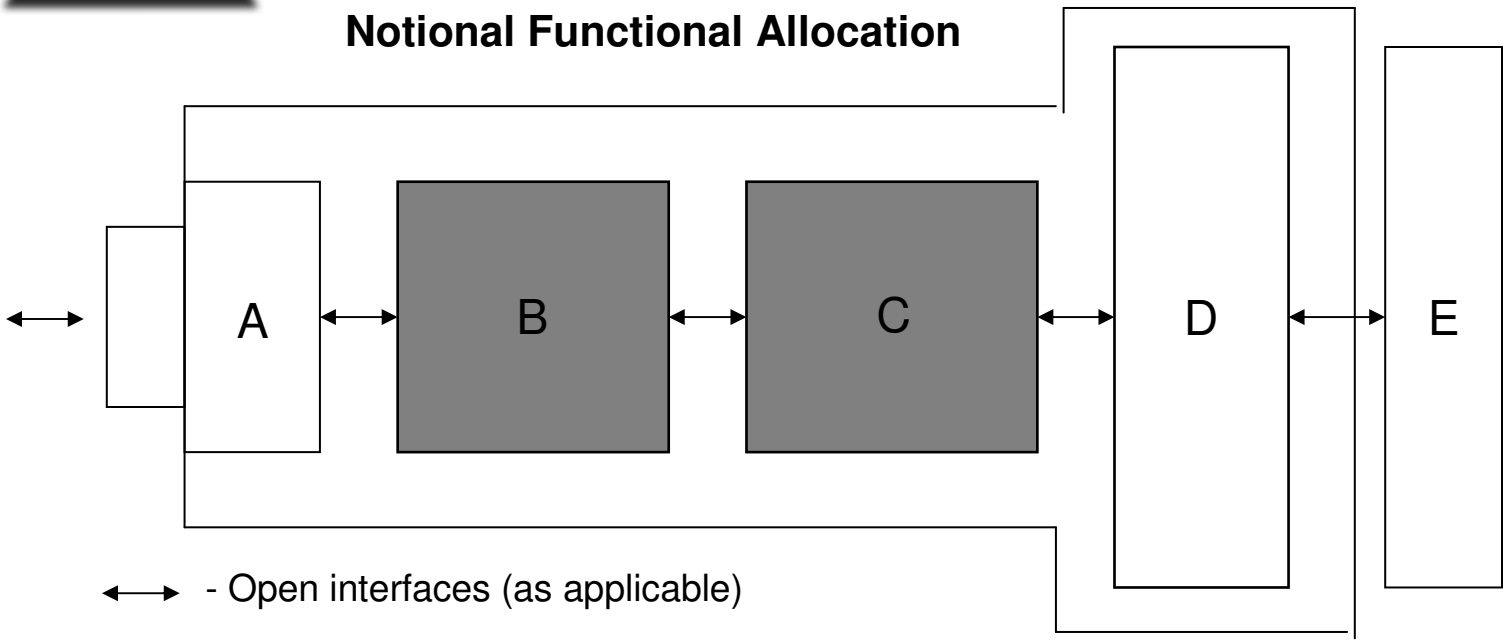


- Open System
  - Best use of commercial standard interfaces
    - Physical / Electrical / Functional
    - External & internal (level of which is TBD by modularity)
  - Any proprietary elements will be “invisible”
  - Scalable
    - Physical – Display size
    - Functional – Processing and Interfaces
  - Minimize aircraft integration impacts across the range of avionics architectures
- Modular Design – Evaluating the potential for future SRA level competition
  - Allocation to functional components that make best sense
  - Allow for leveraging of obsolescence management and tech refresh
  - Proper specifications of the design will be critical

Both “Open-ness” and “Modularity” will be significant evaluation factors

CAD Architecture Concept

Notional Functional Allocation



	Smart Display	**Dumb Display**
A	Chassis / Backplane / Power Supply	common/simplified
B	I/O Module	*simplified/removed*
C	Processor Module	*simplified/removed*
D	Display Head Assembly (DHA)	common
E	Bezel / Switch-panel	common

OA will allow CAD to support both “Smart” & “Dumb” display types.

CAD Status / Summary

- Request For Information (RFI) released in September
  - Solicited industry for thoughts on commonality and OA as applied to Displays
- Established Common Display Working Group (CDWG) at CAD Industry Day on 15 Dec 2005
  - Provides a conduit for exchanging information between industry and government on possible and plausible CAD solutions.
  - CDWG 2 held on Jan 25, 2006 – more to follow
- Observations to date
  - Industry is somewhat skeptical
  - Employing OA at the display level will be a challenge
  - Vendor implementation of OA should be left to competition space
    - USN should not define modules or exact interfaces

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